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University of New Hampshire - Main Campus, alyssadupont7@gmail.com

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Honors Thesis

AN EXAMINATION OF CHAIN RESTAURANTS EXTERIOR COLORS AND LOGO COLORS

By: ALYSSA DUPONT

Spring Semester, 2014

Faculty Sponsor: PEI-JOU KUO

PETER T. PAUL COLLEGE OF BUSINESS AND ECONOMICS
UNIVERSITY OF NEW HAMPSHIRE

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I. INTRODUCTION

Color psychology is the study of a color as a determinant of human behavior. It studies the effect color has on moods, feelings, and behaviors (Cherry, n.d.). While perceptions of color are fairly objective, there are some color effects that have universal meaning. Warm colors including red, orange, yellow, and brown evoke emotions ranging from feelings of warmth and comfort to feelings of anger and hostility. Cool colors, consisting of blues, greens, and pinks are often described as calm, but can also bring about feelings of sadness or indifference (Cherry, n.d.). The concept of color psychology is becoming more prevalent when it comes to the marketing and design of a company. How a business attracts their customers determines their success and color psychology can be utilized when designing a businesses interior, exterior, logos, business cards, and advertising, etc.

While color psychology has been studied for some time, little hospitality research has been done on the topic of restaurant color and consumer behavior. This paper investigates the colors chain restaurants use in their brand logos and on their buildings' exterior. How these colors are used and the effects they have on human behavior are examined through the research of color psychology and color symbolism. Eighty-five of the Top 100 U.S. Chain restaurants were sampled and the frequency of each color used was calculated. Restaurant themes and the subsequent colors used are addressed and the popularity of warm colors and cool colors on brand logos and building exteriors was also analyzed.

Depending on their purpose, the findings from this research can be utilized by not only future restaurant entrepreneurs, but also by designers and homeowners looking to design their space. How they utilize these findings depends on their purpose and the responses they are looking for from guests. For example, the research in this study will show that the color red can have a physical effect, including increasing the rate of respiration, raising blood pressure, and thus making the heart beat faster as well as making people hungry. This applies to chain restaurants and their need to attract customers. The link between the color red and dominance may also be a reason why a significant amount of chain restaurants utilize the color. Another example would be the cool color green. A restaurant can utilize green to signify freshness or an eco-friendly movement whereas a designer can use it to represent nature and create a calming effect. This research of color addresses both the physical effects on human behavior as well as color symbolism and an individual can utilize these findings in ways specific to their wants and needs.

II. LITERATURE REVIEW AND RESEARCH QUESTIONS

2.1 Color Psychology

Many psychologists address the topic of color psychology and its effect on human behavior. It has been found that colors evoke emotion and can act as a symbol throughout different cultures. Keskar (2010) examined color psychology and symbolism of Western cultures. For example, Keskar (2010) explains the symbolism for the achromatic colors white, black, and gray. It was found that white represents purity, neutrality, sterility and youth as well as symbolizing light, truth, peace, cleanliness, innocence, and marriage. Contrasting the color white is black, which symbolizes death, modernity, power,

sophistication, elegance, wealth, rebellion, and style (Keskar, 2010). Black is associated with evil and death and, therefore, leads to aggressive behavior (Elliot & Maier, 2007; Frank & Gilovich, 1988). Barbieri (2006) states that while people may wear black to be chic, it is actually mostly worn by people who are trying to blend in and are a little insecure. Truly confident people wear white (Barbieri, 2006). Between black and white exists the color gray symbolizing elegance, humility, wisdom, respect, and boredom.

2.1.1 Elliot and Maier's General Model

Elliot and Maier (2007) developed a general model of color and psychological functioning. They addressed Goldstein's (1942) proposal that "red and yellow are naturally experienced as stimulating and disagreeable, that these colors focus people on the outward environment, and that they produce forceful, expansive behavior, whereas green and blue are experienced as quieting and agreeable, focus people inward, and produce reserved, stable behavior" (Elliot & Maier, 2007, p. 250). Elliot and Maier (2007) explained, "aside from Goldstein's proposal and its derivatives, most theoretical statements about color rely on general associations. Different colors are presumed to have different associations, and viewing a color is thought to trigger psychological responses consistent with these associations" (p. 250). Maier, Molloy, Friedman, and Meinhardt (2007) developed a general model of color and psychological functioning because the present research on color and psychological functioning in general is afflicted with several flaws. Elliot and Maier (2007) explain these flaws by saying many studies have neglected to follow basic experimental procedures such as ex-perimeter blindness to hypothesis and condition. In addition, many of the manipulations in these studies have been uncontrolled (e.g., presenting color on an office wall for 4 days) or have altered participants' typical

perceptual experience (e.g., presenting color via overhead lights). And most importantly, almost no extant research has observed the effect of hue while controlling for lightness (similar to brightness) and chroma (similar to saturation), despite the fact that these other color attributes can themselves influence psychological functioning (Elliot & Maier, 2007).

There are 6 core premises of Elliot and Maier's model. The first is that colors are not just about aesthetics; they can also carry specific information. These color meanings are grounded into two basic sources: learned associations that develop from recurring pairings of colors with specific messages, concepts, or experiences; and biologically based proclivities to respond to particular colors in particular ways in certain situations (Elliot & Maier, 2007). The third premise is that the mere perception of color evokes evaluative processes and the fourth is that the evaluative processes evoked by color stimuli produce motivated behavior (Elliot & Maier, 2007). The fifth premise is that color usually exerts its influence on psychological functioning in a spontaneous fashion; the full procedure from evaluation of the color stimulus to activation and operation of motivated behavior typically takes place without conscious intention or awareness. Last, but not least, the sixth premise is that color meanings and effects are contextual. All colors have different implications for feelings, opinions, and behaviors in different contexts (Elliot & Maier, 2007).

2.1.2 Color Effects

It was also important for Elliot and Maier (2014) to note that color meanings and color effects are context specific. This can be shown by the fact that red, when seen on an opponent or test of ability, can carry a negative, threatening meaning and would evoke avoidance-relevance and affect cognition and behavior. At the same time, when seen on a

potential mate red can carry a positive appetitive meaning and facilitate approach-relevant responding. It is important to note that context may be physical and psychological. Elliot and Maier (2014) explain this by saying, “color is typically viewed on an object as well as within a psychological context, and the object on which a color is viewed can influence its meaning and valence” (p. 109).

2.1.3 Wavelength and Arousal

Researchers reviewing Goldstein’s (1942) ideas tended to look at them through the lens of wavelength and arousal. Nakashian (1964) addressed this by saying longer wavelength colors like red and orange are experienced as arousing or warm and shorter wavelength colors like green and blue are experienced as relaxing or cool (Elliot & Maier, 2014). Stone and English (1998) stated their presumption on wavelengths by stating, “The experiential states induced by wavelength are presumed to influence performance on achievement tasks, with longer, relative to shorter, wavelength colors inducing states that impair performance on complex tasks but facilitate performance on simple tasks” (Elliot & Maier, 2014, p. 97). Ott (1979) suggested that color directly creates physical reactions in the body that are noticeable in observable behavior by explaining that pink and orange light have an endocrine-based weakening effect on muscle function while blue has an endocrine-strengthening outcome on muscle functioning.

On a physiological level, color affects the production and release of hormones. There has been empirical work done that demonstrates the physiological effects of color in both animals and human with varying effects on heart rate, respiration rate, blood pressure, muscle activation, blinking, palmar conductance, and brain waves (Labrecque, Patrick, &

Milne, 2013). Labrecque, Patrick, and Milne (2013) also stated “the phenomenon of synesthesia also supports the notion that colors have strong biological links to emotions and physical reactions.”

2.2 Color Perception and Association

Wolfgang von Goethe (1967) offered his thoughts on the influence of color perception on emotional experience in his work titled “Theory of Colors.” Wolfgang von Goethe classified colors as “plus colors” or “minus colors.” Plus colors included yellow, red-yellow and yellow-red and were believed to provoke positive feelings such as lively, aspiring, and warm (Elliot & Maier, 2014). Minus colors represented blue, red-blue, and blue-red and were thought to stimulate negative feelings such as restless, anxious, and cold (Elliot & Maier, 2014).

Goldstein (1942) took Wolfgang von Goethe’s ideas and expanded on them by proposing that “color perception produces physiological reactions in the body that are overtly manifest in people’s emotions, cognitive focus, and motor behavior” (Elliot & Maier, 2014, p. 97). Goldstein (1942) proposed that red and yellow were theorized to be stimulating, to prompt an outward concentration, and to produce forceful action, whereas green and blue were hypothesized to be relaxing, to encourage inward concentration, and to produce calm and unwavering action (Elliot & Maier, 2014).

2.2.1 Warm Colors

Bright colors such as red, orange, and yellow are categorized as warm colors versus blues and green, which are considered cool colors (Keskar, 2010). A visual of warm and

cool colors is shown in figure 1. Studies have shown that red can have a physical effect, including increasing the rate of respiration, raising blood pressure and thus make the heart beat faster as well as making people hungry. Red symbolizes passion, strength, romance, excitement, love, speed, leadership, power, anger, and ambition (Keskar, 2010) and brings out the masculine side of people (Barbieri, 2006).

Elliot and Maier's research has mainly focused on the color red in achievement contexts. Their hypothesis is that "red carries the meaning of danger in such contexts, specifically the psychological danger of failure" (Elliot & Maier, 2007, p. 251). One experiments results from Elliot and Maier (2007) showed that participants who were shown red solved fewer anagram tests compared to those participants who were shown green or black. The results were replicated when white and gray were used instead of green and black as well. Elliot and Maier lead two additional experiments so they could analyze the effect of red on nonconscious avoidance motivation. Results of participants choosing which items they wanted on a test with color manipulation showed that partakers shown red selected more easy items than those shown green or gray yet participants shown green or gray did not differ. Another experiment found that participants who were shown red demonstrated more prefrontal cortical activity compared to those shown green or gray (Elliot & Maier, 2007).

In another set of experiments Elliot and Maier (2007) observed the effect of red on physically enacted avoidance behavior. In the first experiment participants were shown the red cover of a test they were about to take in a lab next door. After being shown the test, they knocked on the door first as they anticipated taking the test. The second experiment showed that students who were shown a red cover of an IQ test that they'd be taking

moved their bodies away from the test cover to a greater degree than those shown a green or gray cover. It was found that the effect of red in these experiments occurred without the participant's awareness.

Hill and Barton (2005) emphasized the signal function of red in competitive interactions in human and nonhuman animals. For many animals such as primates, Hill and Barton (2005) found that "red coloration in aggressive encounters is a testosterone-based indicator of dominance in males; the alpha male shows the most prominent red" (Elliot & Maier, 2014, p. 99). Similarly in humans, testosterone surges in aggressive encounters create visible reddening of the face while fear produces paleness. This link between red and dominance may transfer from physiological processes to artificial stimuli such as sport jerseys. If so, wearing red in aggressive competitions such as boxing would be seen as a dominance signal and lead to enhanced performance (Elliot & Maier, 2014).

To test their hypothesis that red functions as a dominance cue in human competitions and enhance performance accordingly, Hill and Barton (2005) used data from four combat sports such as boxing and tae kwon do in the 2004 Olympics. It was found that competitors unsystematically assigned to red compared to blue sportswear were more likely to win the competition. This proposal was further supported when Ilie et al. (2008) found that on a multiplayer first-person shooter video game, the red team would win more games than the opposing blue teams. Attrill et al. (2008) also found a performance advantage for teams wearing red after analyzing fifty years of archival data from elite English soccer leagues (Elliot & Maier, 2014). It is suggested by Elliot and Maier (2014) that the red effect may be present in some countries but not others. They also compared

viewing the color red versus wearing red and found that opponents wearing red are perceived to be more dominant, intimidating, competitive, and assertive (Elliot & Maier, 2014; Feltman & Elliot 2011, Greenlees et al. 2008, Ten Velden et al. 2012).

While red can be an advantage in the competitive context, Elliot and colleagues (2007) also found that red in an attainment context can weaken performance on difficult tasks that involve mental manipulation and flexibility. Their experimental studies presented that persons shown red before or during anagram, analogy, or math assignments performed worse than those who saw green or achromatic control colors (Elliot & Maier, 2014). Elliot and Maier (2014) explain that in terms of mechanism(s) accountable for the red effect on performance, several studies have established that red is implicitly linked with failure and danger in achievement situations (Mehta & Zhu, 2009; Moller et al. 2009; Rutchick et al 2010). Comparatively, some experiments showed evidence proposing blue or green may be beneficial for creative performance (Elliot & Maier, 2014; Litchfield et al. 2012, Mehta & Zhu 2009; cf. Küller et al. 2009) and that yellow may be detrimental for some kinds of difficult cognitive tasks (Elliot & Maier, 2014; Kumi et al. 2013, Yamazaki, 2010).

Keskar (2010) found that orange carries less of an intensity compared to red and symbolizes happiness, energy, balance, fire, enthusiasm, and desire. At a factory in the 1950's, workers complained that the canteen was too cold even after the heat was turned up. Management painted the walls orange and suddenly the workers thought they were warmer (Barbieri, 2006). Yellow can also be compared to red in the fact that it evokes feelings of happiness, but when confronted with too much yellow one can become annoyed

or angered. Yellow typically symbolizes joy, happiness, intelligence, wealth, optimism, sociability, and friendship (Keskar, 2010). Yellow is frequently used to indicate caution in signage and brake lights and some studies have hinted that yellow may have unfavorable implication for performance outcomes whereas achromatic black and white tend to carry general negative and positive connotations (Elliot & Maier, 2014; Lakens et al. 2012). It has also been said that yellow can increase your metabolism (Cherry, n.d.).

Because brown is the color of soil, it gives off an earthy, environmental quality. It symbolizes calm, boldness, richness, rusticity, and stability, as well as dullness, poverty, and roughness. It has also been found that brown can stimulate the appetite and signify wholesomeness, steadfastness, simplicity, friendliness, and dependability while ironically also being associated with disgust (Keskar, 2010).

2.2.2 Cool Colors

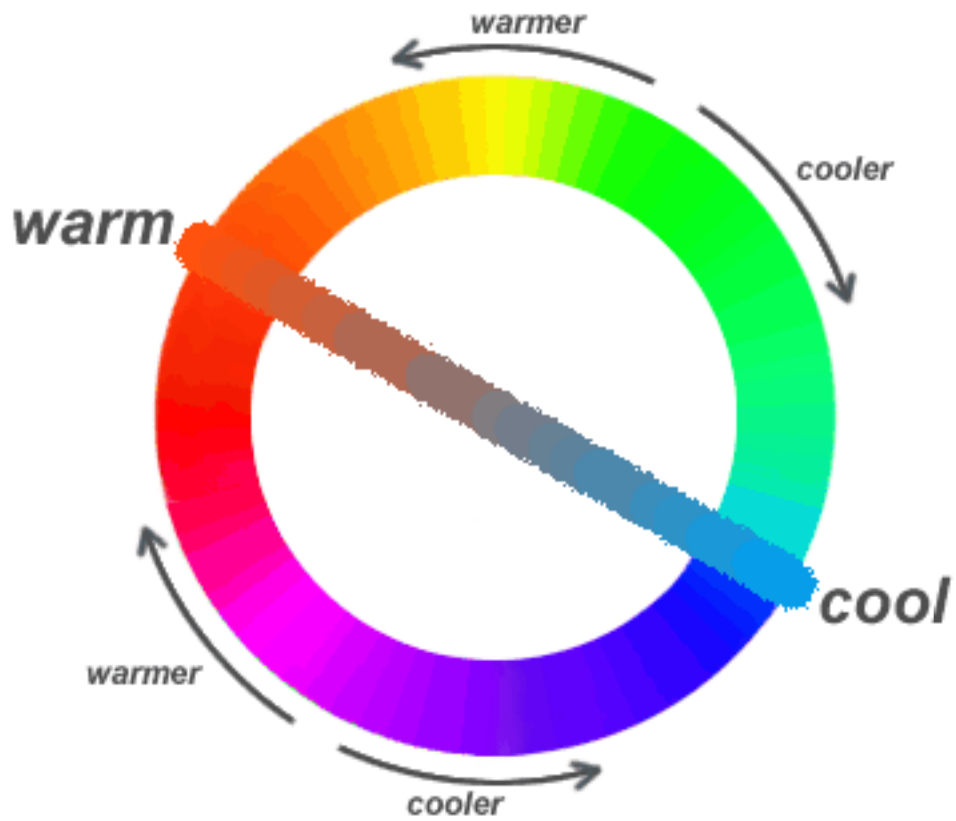
The cool hues of blue and green are regarded as soothing and passive. They release tension rather than increase it like red hues. Keskar (2010) explains that blue is non-threatening, yet confident and stable. Weightlifters have been found to lift heavier weights in blue rooms and while this is favorable, blue can also signify depression (Keskar, 2010). Other symbolisms blue can be recognized for are harmony, productivity, peace, unity, trust, calmness, wisdom, dependability, and truthfulness. Both blue and green have provided links to the natural realm and are associated with positive content. Studies have generated preliminary evidence that one or both of these colors may have positive effects for performance or experience during task engagement in some instances (Elliot & Maier, 2014).

When addressing the color green, Keskar (2010) states, “green says ‘nature,’ which

explains why it is such a powerful symbol in the eco-friendly movement, as well as 'initiative' and 'wealth,' but just as it symbols good, the extremes of green are considered to be bad as in "green with envy" or its association with money which is sometimes deemed as "the root of all evil" (p. 2). Overall, the representation of green can symbolize more good things than bad including intelligence, fertility, a time of rebirth, good luck, generosity, growth, and calming (Keskar, 2010). In a factory during the 1950's workers complained that black boxes were too heavy. When painted green, the workers were much happier although the load did not change (Barbieri, 2006).

Keskar also researched some less popular colors including pink, indigo, violet, magenta, and rose. With the color pink being a sister color of red one might think they share the same symbolism, but this is not the case. Pink is considered a cool, tranquilizing color. Because of this many prisons paint the cells of the most threatening residents pink. It symbolizes gratitude, appreciation, admiration, sympathy, health, flirtatiousness, and innocence (Keskar, 2010). Indigo symbolizes spirituality and intuition while violet symbolizes magic. Magenta symbolizes "artistic creativity or anti-racism whereas rose symbolizes optimism or romantic love as well as innocence and simplicity" (Keskar, 2010, p. 3). The color of royalty and wisdom is represented by purple. It can symbolize nobility, envy, sensuality, spirituality, wealth, mystery, pride, and romanticism (Keskar, 2010). It is also important to note that color associations are created as individuals encounter pairings of colors with particularly significant messages, concepts, objects, and experiences. These produce links between color and paired concepts throughout our lives (Labrecque, Patrick, & Milne, 2013).

Figure 1. Warm vs. Cool Colors



Source: <http://www.feng-shui-and-beyond.com/color-wheel-chart.html>

2.3 Color In Marketing

Due to technological advances and lowered costs of color in manufacturing, consumers are now able to choose products in various colors to fit their personality and personal choice. While these advances have been made, limited hospitality research has been done on the topic of marketing color and consumer behavior. Labrecque, Patrick, and Milne (2013) address this topic. Marketers use color for everything from advertisements to package design to logos to store atmospheres all to grab consumers' attention, offer cues about product attributes, and distinguish brands from competition (Labrecque, Patrick, & Milne, 2013).

2.3.1 Brand Logo

Color is significant to a brand's identity because consumers use color cues to assess products and make decisions. Color is a tool that allows objects to become more nuanced and meaningful (Labrecque, Patrick, & Milne, 2013; Rawsthorn, 2010). Technology advancements have changed the way marketers look at and use color in their consumer offerings. During the Renaissance little distinction was made between red and purple, possibly labeling a range of similar hues with the same name. In comparison, today's society not only has distinct colors but multiple names for the endless variations (Labrecque, Patrick, & Milne, 2013). The evolution of colors can be perfectly described through Crayola's crayon boxes. In 1903 Crayola started out with just 8 colors and by 2009 they had an assortment of 120.

When it comes to branding and logo design it was found that in a classification of

“functional” and “social-sensory,” affect increased when color type matched the product type. Labrecque and Milne (2012) found that hue, saturation, and value all influenced brand personality. Logo color and shape influence brand likability and matching of package color and brand personality profile increased purchase intent (Labrecque, Patrick, & Milne, 2013). With regards to package design, evidence showed that package color uniqueness increased purchase consideration. Differences were found by product category and for shoppers who were not brand loyal (Labrecque, Patrick, & Milne, 2013; Garber, Burke, & Jones, 2000).

2.3.2 Advertising

Labrecque, Patrick, and Milne (2013) presented findings from other authors regarding advertising and color. It was found that ads with higher saturation produced feelings of excitement, which increased likability. High value also produced greater liking for the brand, which was mediated by feelings of relaxation (Labrecque, Patrick, & Milne, 2013; Gorn, Chattopadhyay, Yi, and Dahl, 1997). Mehta and Zhu (2009) found that red stimulated an avoidance motivation, which increased attention, memory, and favorable evaluations of prevention-focused ads. Blue, on the other hand, led to favorable evaluations of ads that highlighted positive product benefits because it activated an approach motivation (Labrecque, Patrick, & Milne, 2013). When studying print ads it was found that color could be a persuasive heuristic processing cue for less-motivated consumers (Labrecque, Patrick, & Milne, 2013; Meyers-Levy & Peracchio, 1995).

2.3.3 Atmospherics

Atmospherics is “the effort to design buying environments to produce specific emotional effects in the buyer that enhance his purchase probability” as stated by Kotler (1973). In regards to atmospherics, a study found that the interaction of color (orange/blue) and light (soft/bright) affected purchase intentions and price fairness. The effects of color, lights, and price on behavioral intentions are mediated by the cognitive and affective reactions they create (Labrecque, Patrick, & Milne, 2013; Babin, Hardesty, & Suter, 2003). When comparing a red and blue atmosphere it was found that blue caused more simulated purchases, fewer purchase delays, and a stronger proclivity to shop and browse (Labrecque, Patrick, & Milne, 2013; Bellizzi & Hite, 1992). Blue and other cool colors have been found to create a more relaxed shopping environment and resulted in more purchases whereas warm colors increased physical attraction (Labrecque, Patrick, & Milne, 2013; Bellizzi, Crowley, & Hasty 1983). In regards to atmospherics, results show a two-dimensional response to color. In general it was found that longer wavelengths, such as colors closer to red, are more arousing and shorter wavelengths, such as colors closer to blue, are viewed as more pleasant (Labrecque, Patrick, & Milne, 2013; Crowley 1993).

Atmospherics provide a significant marketing tool that can put enormous influence on consumer behavior through visual, aural, olfactory, and tactile elements (Labrecque, Patrick, & Milne, 2013). Kotler (1973) explains that atmospherics can influence purchase behavior in at least 3 ways: “as an attention-getting medium, a message-creating medium, and an affect-creating medium” (Labrecque, Patrick, & Milne, 2013).

In general, research has found that cool-colored store environments are more desirable than warm-colored environments. As stated earlier, Bellizzi and Hite (1992) have

provided evidence that hue-induced relaxation (a tendency of blue) can increase simulated purchases, reduce purchase postponements, and create a stronger inclination to browse (Labrecque, Patrick, & Milne, 2013). However, warm colors that provoke arousal may be beneficial when used appropriately since arousal has been linked to decrease self-control and increased impulsivity. Regarding warm colors in certain atmospheres Labrecque, Patrick, and Milne (2013) came to the conclusion that, "Using arousing colors, such as red hue and high saturation, in a retail store checkout environment can decrease relaxation and increase arousal. This can produce (a) a negative effect on perceived length of check out time and satisfaction for consumers in a task-oriented mindset or (b) increase impulse purchasing for those in a browsing mindset" (p. 196). After further research, Labrecque, Patrick, and Milne (2013) stated that, "in addition to lighting, color may interact with other sensory cues including scent, music, ambient temperature, store size and shape, and ceiling height, which alter consumers' moods, motivations and information processing" (p. 197).

2.3.4 Food Marketing

Food marketing research found that color affected identification and flavor perceptions of both congruently and incongruently colored beverages (Labrecque, Patrick, & Milne, 2013; Garber, Hyatt, & Starr, 2000). It was also evidenced that color cues dominated taste cues. Participants in an experiment perceived a considerably greater difference in the taste of two identical samples with different color compared to two different samples with the same color (Labrecque, Patrick, & Milne, 2013; Hoegg & Alba, 2007).

In today's society, most modern foods are actually not their natural colors. Instead,

they have been enhanced or modified to provide certain cues such as freshness and taste. It has become the norm for consumers to distinguish and anticipate flavor because of these artificial color cues. Acceptance of color differentiation has changed throughout the years and nowadays we see products like Heinz's colored ketchup and Vitamin Water's brightly colored beverages as the norm. Color can alter taste perceptions, dominating other flavor information sources such as labeling and taste (Labrecque, Patrick, & Milne, 2013; Garber, Hyatt, & Starr, 2000; Hoegg & Alba, 2007).

It is important for marketers to consider when showcasing food color is important. Labrecque, Patrick, and Milne (2013) explain that some colored products, especially unique products like quinoa and fava leaves, may have to be visible to consumers in order to facilitate purchase. Coca-Cola's research said a factor that affected the failure of the product Coke Blak, a "coffee-flavored soda," was the opaque package that did not allow customers to visually inspect the product before buying (Labrecque, Patrick, & Milne, 2013; Jones, 2009). Labrecque, Patrick, & Milne (2013) made a point to say that if a business wants to adopt a new/novel food product, customers should be able to attain a sensory feel of the product through visual assessment of the color of the product prior to or at the time of purchase.

In a lot of cases, marketing efforts have shaped consumer's color associations. This can be seen when marketers use colors to shape taste expectations in food, such as adding green to mint-flavored food or brown to color cola-flavored beverages (Labrecque, Patrick, & Milne, 2013). While color can provide a central part of a brand's visual identity and grow brand recognition and likability, it is important that marketers think about people's learned

color meanings before they design product packages, especially if they plan to break from color product category norms (Labrecque, Patrick, & Milne, 2013; Skorinko, Kemmer, Hebl, & Lane, 2006; Labrecque & Milne, 2012).

2.4 Research Questions

Past literature suggested that different colors have different physical and psychological effects. The purpose of this study is to examine colors used on the exterior of chain restaurants as well as in brand logos. Restaurant exterior colors could be chosen for different purposes, for examples, attracting attention, arousing appetites and increasing desire to purchase. Restaurant brand names and themes could also influence the colors chosen for restaurant exteriors. This study aims to identify the most common colors used for exteriors among accomplished chain restaurants. The meanings behind these common colors according to color psychology literature were also analyzed. The first research question is stated as below:

Research Question 1: What are the most common restaurant exterior colors (building and logo)?

The two major color schemes addressed in the literature review are warm and cool colors. In general, warm colors provoke arousal and cool colors are soothing and passive. Each color has been suggested to symbolize a variety of different things as well as have a variety of different physical and psychological effects. Based on the literature review, when comparing a red and blue atmosphere it was found that blue caused more simulated purchases, fewer purchase delays, and a stronger proclivity to shop and browse

(Labrecque, Patrick, & Milne, 2013; Bellizzi & Hite, 1992). In general, research has found that cool-colored environments are more desirable than warm-colored environments. But, it is important to note that most past research is regarding interior color. Because red alone has received an extensive amount of research regarding human behavior I question if there is a significant difference between the use of warm color and cool colors on restaurants exteriors. This literature leads me to wonder which color scheme is used more in regards to restaurant exteriors. My second research question is stated below:

Research Question 2: Are warm colors used more often in restaurant exteriors compared to cool colors?

III. METHODOLOGY

3.1 Sampling

To sample accomplished chain restaurants the Top 100 U.S. Chains was obtained from Nation's Restaurant News based on annual sales in 2011. Only 85 of these 100 chains were analyzed because 15 of them were not stand-alone restaurants. Some were hotels that provide food and beverage services such as Disney theme parks, hotels, and resorts, Marriot Hotels and Resorts, Hyatt Hotels, Holiday Inn, Sheraton Hotels, and Westin Hotels and Resorts. Others were chains that were considered "in-store" such as Costco, Casey's General Store, and Target Café. Restaurants affiliated with convenience stores such as Sheets, 7-11, and WaWa were also included.

3.2 Data Collection and Analysis

Upon obtaining the Top 100 U.S. Chains chart, Google Image was employed for observation. Each chain restaurants' exterior buildings and logos were googled and examined to see which colors were being utilized. As the data was being obtained, each restaurant was put into an excel chart with columns for their rank, segment, the colors used in their logo, the colors used on their exteriors, and if the colors used were warm or cool color dominant. Once organized, the frequency of each color was calculated. Then a table was created to explain possible reasons for the use each color based on the literature review.

IV. RESULTS

4.1 Most Common Colors

The top six most commonly used colors in logos in numerical order are white, red, yellow, black, green, and blue. The top six exterior building colors are tan, red, white, green, black, and yellow, also in numerical order. Seventy-seven percent of the 85 chain restaurants examined had the color red in their logos with only white surpassing them as the most popular color used (82%), presumably to fill negative space as well as represent simplicity and cleanliness. Sixty-one percent of the 85 chain restaurants used red on their exteriors with only tan surpassing them as the most color used (96%) on their exteriors. Tan is a nice backdrop to accentuate other colors. It allows an exterior to bring out warm and cool tones. Black is used in 35% of logos and on 24% of buildings' exteriors. Green is used in 27% of logos and on 24% of buildings' exteriors. Yellow is used in 44% of logos and on 18% of buildings. Blue takes sixth place for logos with 16% of businesses using the color and seventh place for buildings exterior colors with 12% of chains utilizing it. Orange, purple, pink, brown, maroon, gray, magenta, wood, and stone are all used in less

than ten percent of the 85 chains examined. The findings for logo colors and exterior colors used are shown in the tables 1, 2, 3, 4, and 5. Based on the literature review, one could suggest a few reasonings for the usage of these common colors. Table 4 analyzes the common colors used and addresses possible reasons for using them.

Table 1. Top 100 Chain Restaurants Logo Colors

Rank	Chains	Segment	Logo Color(s)
1	McDonald's	Sandwich	Red, Yellow, and White
2	Subway	Sandwich	Green, Yellow, and White
3	Starbucks Coffee	Beverage-Snack	Green, White, and Black
4	Burger King	Sandwich	Red, Blue, Yellow, and White
5	Wendy's	Sandwich	Red, White, and Blue
6	Taco Bell	Sandwich	Purple, Yellow, White, and Pink
7	Dunkin' Donuts	Beverage-Snack	Orange, Pink, and White
8	Pizza Hut	Pizza	Black, Red, White, and Yellow
9	KFC	Chicken	Red, White, and Black
10	Applebee's Neighborhood Grill & Bar	Casual Dining	Green, White, and Red
11	Chick-fil-A	Chicken	Red and White
12	Sonic, America's Drive-In	Sandwich	Red, Yellow, and Blue
13	Olive Garden	Casual Dining	Green, Tan, and Purple
14	Chili's Grill & Bar	Casual Dining	Red and Green
15	Domino's Pizza	Pizza	Red, Blue, and White
16	Panera Bread	Bakery-Café	Green, Black, Yellow, and White
17	Jack in the Box	Sandwich	Red and White
18	Arby's	Sandwich	Red and White
19	Dairy Queen Ice Cream	Sandwich	Red and White
20	Red Lobster	Casual Dining	Red, Black, and White
21	IHOP	Family	Blue, White, and Red
22	Denny's	Family	Red and Yellow
23	Outback Steakhouse	Casual Dining	Red and White
24	Chipotle Mexican Grill/Chipotle	Sandwich	Red, White, and Maroon
25	Papa John's Pizza	Pizza	Red, White, and Green
26	Buffalo Wild Wings Grill & Bar	Casual Dining	Black, Yellow, and White
27	Cracker Barrel Old Country Store	Family	Brown and Yellow
28	Hardee's	Sandwich	Red, White, and Yellow

29	T.G.I. Friday's	Casual Dining	Red, White, and Black
31	Popeyes Louisiana Kitchen	Chicken	Red, Green, and White
32	Golden Corral	Buffet	Red, Yellow, and White
33	The Cheesecake Factory	Casual Dining Other	Yellow and White
34	Panda Express	QSR/Chinese	Red, Black, and White
36	Little Caesars Pizza	Pizza	Orange, White, and Black
37	Carl's Jr.	Sandwich	Red, White, and Yellow
38	Ruby Tuesday	Casual Dining	Red, Black, and White
39	Texas Roadhouse	Casual Dining	Red, Green, and Yellow
40	Whataburger	Sandwich	Orange and White
	Red Robin Gourmet Burgers &		
42	Spirits	Casual Dining	Red, Yellow, White, and Black
44	LongHorn Steakhouse	Casual Dining	Red, Black, and White
45	Jimmy John's	Sandwich	White, Red, and Black
46	Waffle House	Family	Black and Yellow
47	Bob Evans Restaurants	Family	Red, Yellow, and Black
48	Five Guys Burgers and Fries	Sandwich	Red and White
49	P.F. Chang's China Bistro	Casual Dining	Red, White, and Black
51	Church's Chicken	Chicken	Yellow, Red, and Blue
52	Hooters	Casual Dining	Orange, Brown, and White
54	Quiznos Sub	Sandwich	Red, Green, White, and Tan
55	Zaxby's	Chicken	Blue. Red, Yellow, and White
56	Steak n Shake	Family/QSR	Black and White
	Bojangles' Famous Chicken 'n		
57	Biscuits	Chicken	Red, Black, and Yellow
58	Culver's	Sandwich	Blue and White
59	Long John Silver's	Other QSR/Fish	Blue, Red, and White
60	Papa Murphy's Take 'N' Bake Pizza	Pizza	Red, Green, White, and Yellow
61	Perkins Restaurant and Bakery	Family	Green, Red, White, and Yellow
62	Carrabba's Italian Grill	Casual Dining	Green and Red

63	California Pizza Kitchen	Casual Dining	Yellow, Black, and White
64	Logan's Roadhouse	Casual Dining	Red, Yellow, and Black
65	Romano's Macaroni Grill	Casual Dining	Red, Green, and White
66	BJ's Restaurant & Brewery	Casual Dining	Red, White, Tan, and Black
67	In-N-Out Burger	Sandwich	Red, Yellow, and White
68	Del Taco	Sandwich	Red, Green, and Yellow
71	Friendly's Ice Cream	Family	Red and White
72	El Pollo Loco	Chicken	Yellow, Red, and Purple
74	Jason's Deli	Sandwich	Red, White, and Yellow
75	O'Charley's	Casual Dining	Green and White
76	Boston Market	Chicken	Red, Black, and White
77	Krispy Kreme Doughnuts	Beverage-Snack	Red, White, and Green
79	Qdoba Mexican Grill	Sandwich	Black, Green, Red, and White
80	White Castle	Sandwich	Blue, White, and Orange
81	CiCi's Pizza	Sandwich	Red and White
83	Baskin-Robbins	Pizza	Blue, Pink, and White
84	Famous Dave's	Casual Dining	Yellow, Red, White, and Black
85	Tim Hortons	Bakery-Café	Red and Tan
86	Ruth's Chris Steak House	Casual Dining	Red, Black, and White
89	Bonefish Grill	Casual Dining	Black, Tan, and White
91	Jamba Juice	Beverage-Snack	Green, Pink, and Yellow
92	Cheddar's	Casual Dining	Red, White, Yellow, Black, and Blue
93	Einstein Bros. Bagels	Bakery-Café	Yellow, Black, and White
94	Captain D's Seafood	Other QSR/Fish	Blue, Orange, and White
95	Checkers	Sandwich	Red, White, Yellow, and Black
96	Sbarro, The Italian Eatery	Other QSR/Italian	Green, White, Red, and Black
97	Krystal	Sandwich	Red, White, and Yellow
			Red, Purple, Green, Gray, and Yellow
98	Chuck E. Cheese's	Pizza	Yellow
99	Big Boy Restaurant & Bakery	Family	Red and White
100	On the Border Mexican Grill &	Casual Dining	Purple, Green, and Red

Cantina

***Based on Nation Restaurant News chart of Top 100 Chains: U.S. Sales in 2011**

Table 2: Top 100 Chain Restaurants Exterior Colors and Color Dominance

Rank	Chains	Building Color (s)	Warm or Cool Color Dominant
1	McDonald's	Red, Yellow, White, and Tan	Warm
2	Subway	Green and Tan	Mixed
3	Starbucks Coffee	Green, Black, and Tan	Cool
4	Burger King	Blue, Yellow, Red, and Tan	Warm
5	Wendy's	Tan, Red	Warm
6	Taco Bell	Tan, Orange	Warm
7	Dunkin' Donuts	Orange, Magenta, Tan	Warm
8	Pizza Hut	Red and Tan	Warm
9	KFC	Red, White, and Tan	Warm
10	Applebee's Neighborhood Grill & Bar	Red, Green, White, and Tan	Mixed
11	Chick-fil-A	Tan, Red, and White	Warm
12	Sonic, America's Drive-In	Yellow, Red, Green, White, and Tan	Warm
13	Olive Garden	Tan	Cool
14	Chili's Grill & Bar	Red, Green, White, and Tan	Mixed
15	Domino's Pizza	Red, Tan, and Blue	Mixed
16	Panera Bread	Tan, Purple, Green, and Yellow	Cool
17	Jack in the Box	Red, White, Black, and Tan	Warm
18	Arby's	Red, Tan, and White	Warm
19	Dairy Queen Ice Cream	Red, White, and Tan	Warm
20	Red Lobster	Red, Black, White, and Tan	Warm
21	IHOP	Blue and Tan	Cool
22	Denny's	Red and Tan	Warm
23	Outback Steakhouse	Tan, Green, and Red	Warm
24	Chipotle Mexican Grill/Chipotle	Red, Tan, and Black	Warm
25	Papa John's Pizza	Red, White, Green, and Tan	Mixed
26	Buffalo Wild Wings Grill & Bar	Yellow, Black, White, and Tan	Warm
27	Cracker Barrel Old Country Store	Brown and Tan	Warm
28	Hardee's	Red, White, Yellow, and Tan	Warm

29	T.G.I. Friday's	Red, White, Black, and Tan	Warm
31	Popeyes Louisiana Kitchen	Red and Tan	Warm
32	Golden Corral	Red, Tan, and White	Warm
33	The Cheesecake Factory	Red and Tan	Warm
34	Panda Express	Red, Tan, Black, and White	Warm
36	Little Caesars Pizza	Orange, White, and Tan	Warm
37	Carl's Jr.	Red and Tan	Warm
38	Ruby Tuesday	Tan, Black, and Red	Warm
39	Texas Roadhouse	Green and Wood	Cool
40	Whataburger	Blue, Orange, and White	Mixed
42	Red Robin Gourmet Burgers & Spirits	Red, Tan, and White	Warm
44	LongHorn Steakhouse	Black, Red, and Tan	Warm
45	Jimmy John's	Black, Red, and Tan	Warm
46	Waffle House	Yellow, Black, Red, and White	Warm
47	Bob Evans Restaurants	Red, White, and Tan	Warm
48	Five Guys Burgers and Fries	Red and Tan	Warm
49	P.F. Chang's China Bistro	Tan	Warm
51	Church's Chicken	Red, Blue, and Tan	Warm
52	Hooters	Orange and Tan	Warm
54	Quiznos Sub	Green and Tan	Cool
55	Zaxby's	Tan and Black	Warm
56	Steak 'n Shake	Red, Yellow, Black, White, and Tan	Warm
57	Bojangles' Famous Chicken 'n Biscuits	Orange and Tan	Warm
58	Culver's	Blue, White, and Tan	Cool
59	Long John Silver's	Blue, Yellow, and Tan	Cool
60	Papa Murphy's Take 'N' Bake Pizza	Tan and Green	Cool
61	Perkins Restaurant and Bakery	Green, White, and Tan	Cool
62	Carrabba's Italian Grill	Stone	Mixed
63	California Pizza Kitchen	Yellow, Tan, and Black	Warm
64	Logan's Roadhouse	Green and Tan	Cool
65	Romano's Macaroni Grill	Green, Stone, and Tan	Mixed

66	BJ's Restaurant & Brewery	Red and Tan	Warm
67	In-N-Out Burger	White and Red	Warm
68	Del Taco	Red, Tan, and Yellow	Warm
71	Friendly's Ice Cream	Red, White, and Tan	Warm
72	El Pollo Loco	Red and Tan	Warm
74	Jason's Deli	Green and Tan	Cool
75	O'Charley's	Tan, Red, Green, and Yellow	Cool
76	Boston Market	Tan, Red, Black, and White	Warm
77	Krispy Kreme Doughnuts	Green, White, and Tan	Cool
79	Qdoba Mexican Grill	Red and Tan	Warm
80	White Castle	Blue and White	Cool
81	CiCi's Pizza	Red and Tan	Warm
83	Baskin-Robbins	Blue, Pink, and Tan	Mixed
84	Famous Dave's	White, Red, Yellow, and Tan	Warm
85	Tim Hortons	Tan	Warm
86	Ruth's Chris Steak House	Tan and Black	Warm
89	Bonefish Grill	Black and Tan	Neutral
91	Jamba Juice	Yellow and Tan	Mixed
92	Cheddar's	Orange and Tan	Warm
93	Einstein Bros. Bagels	Black and Tan	Warm
94	Captain D's Seafood	Blue, White, and Tan	Cool
95	Checkers	Black, Red, White, and Tan	Warm
96	Sbarro, The Italian Eatery	Green, White, Red, Black, and Tan	Mixed
97	Krystal	Tan, Red, and Black	Warm
98	Chuck E. Cheese's	Purple, Red, and Tan	Warm
99	Big Boy Restaurant & Bakery	Red and Tan	Warm
100	On the Border Mexican Grill & Cantina	Tan, Green, Purple, and Yellow	Cool

***Based on Nation Restaurant News chart of Top 100 Chains: U.S. Sales in 2011**

Table 3. Color Frequency in Brand Logos

Color	Frequency in Logos Out of 85 Chain Restaurants	Percentage
White	70	82%
Red	66	77%
Yellow	37	44%
Black	30	35%
Green	23	27%
Blue	14	16%
Orange	7	8%
Purple	5	6%
Tan	5	6%
Pink	4	5%
Brown	2	2%
Maroon	1	1%
Gray	1	1%
Magenta	0	0%
Wood	0	0%
Stone	0	0%

***Based on Top 100 Chains: U.S. Sales in 2011, published by Nation's Restaurant News**

at <http://nrn.com/us-top-100/top-100-chains-us-sales>

Table 4. Color Frequency in Building Exteriors

Color	Frequency in Buildings Exterior Out of 85 Chain Restaurants	Percentage
Tan	82	96%
Red	52	61%
White	35	41%
Green	20	24%
Black	20	24%
Yellow	15	18%
Blue	10	12%
Orange	8	9%
Purple	3	4%
Stone	2	2%
Wood	1	1%
Pink	1	1%
Brown	1	1%
Magenta	1	1%
Gray	0	0%
Maroon	0	0%

***Based on Top 100 Chains: U.S. Sales in 2011, published by Nation's Restaurant**

News at <http://nrn.com/us-top-100/top-100-chains-us-sales>

Table 5: Analysis of Color

Color	Analysis of Color
White	White can signify cleanliness, simpleness, and fills negative space.
Red	Red triggers stimulation, appetite, hunger, and attracts attention.
Yellow	Yellow could trigger happiness/friendliness. Can represent mustard.
Black	Black can be considered sophisticated and powerful.
Green	Green could signify the freshness of food. Could represent the environment.
Blue	Blue can represent dependability and can release tension.
Orange	Orange could signify enthusiasm and is arousing.
Purple	Purple is usually used as an accent color and can calm the mind.
Tan	Tan is a nice backdrop to accentuate other colors.
Pink	Pink is a tranquilizing color.
Brown	Brown stimulates appetites and friendliness as well as an earthy quality.

4.2 Warm Colors and Cool Colors

Out of the 85 chain restaurants 57 (67%) of them used warm colors in both logos and exteriors. Twelve out of the 85 (14%) utilize a mixture of both warm and cool colors and 19% were cool color dominant. Less than 1% uses all neutrals. The warm color red is the most popular color, aside from classic white and tan, with 77% of logos and 61% of exteriors using it. The warm color yellow is also used 44% of the time in logos and on 18% of buildings. More than half of the 85 top 100 chain restaurants examined utilize warm colors but only 20% of the 85 chain businesses use cool colors. This finding suggests that there could be an association between warm exterior colors and restaurant performance.

V. CONCLUSION AND IMPLICATIONS

This study suggests that red is the most popular color used in the sampled restaurants. Based on the literature review one explanation for this could be the fact that red not only increases the rate of respiration and raises blood pressure, but more importantly increases hunger (Keskar, 2010). Specifically, red triggers stimulation, increases appetite, and attracts attention and causes people to look and potentially stop in as it would on a stop sign or red light. Elliot and Maier (2014) found that wearing red in aggressive competition would be seen as a dominance signal. This could ring true to the popular chain restaurants ruling the food industry competition such as McDonald's, Wendy's, Burger King and KFC. It has been noted in findings that cool colors can increase purchases and create a stronger fondness of browsing, but it is important to note that warm colors, on the other hand, provoke arousal (Labrecque, Patrick, & Milne, 2013; Bellizzi & Hite, 1992). This is beneficial for restaurants because arousal has been linked to decrease self-control and increased impulsivity, resulting in more purchases (Labrecque, Patrick, & Milne, 2013; Crowley, 1993). Restaurants are not interested in their customers browsing, they are interested in high turnover, which could be a reason they have found success with red.

Yellow is the third most frequently used color in logos (42%) and the sixth most frequently used color on the exterior of buildings (17%). This warm color evokes happiness and friendliness, two traits that all restaurants strive for and are expected of. One possible explanation for the relatively low numbers is the fact that it was found that when confronted with too much yellow one can become annoyed or angered (Keskar,

2010). However, yellow produces forceful action and could catch a customer's eye.

California Pizza Kitchen definitely has an eye-catching exterior with their bright shade of yellow and when executed correctly, like with the polished combination of black and white in California Pizza Kitchens case, it could work well for a business.

The color green was used in 26% of logos analyzed and on 22% of their exterior buildings. Green in these contexts can symbolize fresh ingredients and eco-friendly environments, both positive things that restaurants could capitalize on. Fresh food is one of the most important things for a restaurant to deliver and to symbolize that in your logo and exterior could be a smart thing to do. The association with nature and the natural world around us is appealing as well. Starbucks successfully utilizes the color green to set them apart from competition. They are environmentally friendly and are committed to energy and water efficiency. Their signature green color signifies this. Being ranked number 3 on the list of the top chain restaurants, one could suggest that Starbucks is utilizing their colors efficiently.

Black is also seen in 34% of logos and 22% of exteriors. While black is associated with evil and death, this does not have to be the case when it comes to using it for restaurant logos and exteriors. The sophistication of this dark color represents elegance and power as well as style. It presents a chic look when combined with other colors. Because black is not the dominant color used in a lot of restaurants, the businesses that do use it could potentially stand out and set themselves apart from competition. Prominent company's who use black as one of their main colors include Buffalo Wild Wings, California Pizza Kitchen, and Boston Market. Elliot and Maier (2014) noted that an achromatic color like black tends to carry general negative and positive connotations. The use of certain

colors depends on what a company wants to emphasize. For instance, if a restaurant wants to emphasize freshness, using black may not be the best color choice for them. Having said that, if black is used wisely, it could create positive effects.

While warm colors are more popular than cool, companies should not underestimate the power of the color blue. Sixteen percent of restaurants use the color in their logos and 12% use it on the exterior. The color is non-threatening, yet confident and can represent reliability. Regarding atmospherics, blue has been found to produce more simulated purchases and fewer purchase delays. Companies may want to take this into consideration when designing the interior of their restaurants. This may be the reason why Burger King combines the warm and cool colors of red, yellow, and blue. The same could be said for Dominos Pizza, White Castle, IHOP, and Circle K.

5.1 Color and Restaurant Theme

While colors have a physiological and physical effect on guests, business owners also could use certain colors to symbolize the food they are offering. For instance, the Red Lobster could use the color red to represent the lobster they serve. Fast food burger restaurants such as McDonald's, Burger King, Sonic, and Wendy's could use red and yellow to symbolize ketchup and mustard, two common condiments used at their outlets. Restaurants also utilize color to represent their food styling. A majority of Italian restaurants such as Romano's Macaroni Grill and Carrabba's Italian Grill utilize their Italian colors (red, green, and white) to showoff their theme. Pizza restaurants such as Sbarro Eatery, Papa John's Pizza, and Papa Murphy's "Take N' Bake" Pizza are often seen using the Italian colors as well. They may also use the color red to symbolize their pizza sauce. Mexican restaurants utilize their characteristically bright colors in a variety of different

combinations as shown by Taco Bell, On the Border Mexican Grill, El Pollo Loco, and Del Taco. O'Charley's shows off their Irish spirit with a green exterior. Because these colors make so much sense with what they are offering, without them I feel as though these companies would not be as successful.

It could be suggested that the most common color used that has resulted in high sales in chain restaurants is red. Warm colors dominate the color categorization of restaurant exteriors and logos with 59 out of 85 (66%) chain restaurants using them. Aside from other factors that affect a restaurant's performance such as service, food quality, and brand recognition, the colors restaurants use could also have a positive effect.

5.2 The Effect of Restaurant Exterior Color on Consumer Behavior

Brand recognition should also be taken into account when analyzing consumer behavior. When a restaurant first opens, the colors may have a bigger influence on customers, especially novice consumers. Once a brand has earned recognition, consumers may just associate the colors with what product is being offered. While it could be suggested that exterior colors effect performance and attract customers, research has not indicated that exterior colors have an effect on customer satisfaction. Customer satisfaction is mostly determined by the service and food provided. The findings noted in this research paper can contribute to new entrepreneurs looking for insight on how to design their restaurants not only on the outside, but the inside as well. Entrepreneurs should first think about their purpose and the responses they are looking for from guests. For example, businesses can use colors to represent a theme they are offering such as Italian colors for Italian food or they can utilize the color red for the fact that it has been shown to increase arousal and appetite. When a business understands their market and what response they

want to get from the public they can begin their design. Once established, they then can utilize the findings in this study to choose the right colors for their restaurant.

VI. LIMITATIONS AND FUTURE RESEARCH

Further studies can survey guests and assess their reaction to chain restaurants exterior color and see if there is any correlation with their buying behavior. It should also be noted that only 85 chain restaurants were sampled. Therefore the generalizability of the research findings may be limited. The effect of restaurant exterior color in different product life cycle stages could also be analyzed much more in depth. When a brand is just starting out, it is possible that color has more of an effect on business and attracting customers, but as the company grows the colors could be related more to their product and the perception people have grown to have towards that restaurant. The effect of color combinations could also be studied. Some restaurant logos have multiple colors and it could be interesting to know which color combinations have the strongest effect. Differentiation could also be researched. When a restaurant uses an uncommon exterior color such as teal or purple, they may set themselves apart from competition. The effect of a restaurant using unique colors on their exteriors could be examined. Further investigation into chain restaurants logo and exterior color would result in more information for entrepreneurs to look at and analyze for the benefits of their new business ventures.

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